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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,704	06/27/2003	John Thomas Pawlak	2003P07963 US	9676

7590 02/12/2007
Siemens Corporation
Intellectual Property Department
170 Wood Avenue South
Iselin, NJ 08830

EXAMINER

BAKER, DAVID S

ART UNIT	PAPER NUMBER
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2884

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/608,704

Applicant(s)

PAWLAK ET AL.

Examiner

David S. Baker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-10 and 25-30 is/are allowed.
- 6) ☒ Claim(s) 11, 13-24 is/are rejected.
- 7) ☒ Claim(s) 2 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003, 27 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Appeal Brief

1. The Appeal Brief filed 10 October 2006 has been accepted and entered.
2. In view of the Appeal Brief filed on 10 October 2006, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Signature: _____



SPE: David P. Porta

Date: _____

2/2/07

Claim Objections

3. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 2 recites that the non-circular orbit is determined based on the first point and the second point. Claim 1, the parent claim of claim 2, recites that the non-circular orbit is determined based on the first sensing position and the second sensing position. However, claim 1 also recites that the detector senses a first point of a patient and then stores that point as a first sensing position; the first point and the first sensing position are the same physical location. Since the two locations are the same, claim 2 does not further limit claim 1 despite the change in nomenclature because the physical value of the location used in the orbital determination would be the same.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 18-19 and 20-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The term "about" in claims 18 and 19 is a relative term which renders the claims indefinite. The term "about" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. The term "about 180 degrees" could be

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interpreted to mean 180 ± 30 degrees, or 180 ± 3 degrees, or 180 ± 0.003 degrees. The term "about 90 degrees" could be interpreted to mean 90 ± 30 degrees, or 90 ± 3 degrees, or 90 ± 0.003 degrees. A clear range or error allowance is required if the term is not erased from the claims. For examination purposes, the claimed limitations have been interpreted to read "180 degrees" and "90 degrees", respectively.

7. The term "generally" in claims 20-22 is a relative term which renders the claims indefinite. The term "generally" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. The term "generally downward" could be interpreted in a temporal or in a directional sense: the first direction is generally downward but sometimes upward; or the first direction is generally downward but sometimes not perfectly downward (meaning a location planar variation in the intended downward axis). In either case, a clear range or error allowance for the term "generally" must be substituted or the term erased from the claims. This reasoning is similar for the phrase "generally vertical" in claim 21 and the phrase "generally parallel" in claim 22. For examination purposes, the claimed limitations have been interpreted to read "downward", "vertical", and "parallel", respectively.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 11, 13-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lonn (US 5,777,332 A) in view of Pierfitte (US 6,204,503 B1).

Regarding claim 11, Lonn discloses a method of orbital calculation the steps comprising: moving, relative to a patient, a detector in a direction toward a patient to a position adjacent to a patient based on an output of a proximity sensor that senses patient proximity to the detector (column 7 lines 12-27); calculating an orbital path of the detector around the patient based upon the position adjacent to the patient (column 8 lines 18-55); and using the calculated orbital path to move the detector about the patient to obtain imaging data of the patient (column 5 lines 14-36). Lonn does not disclose expressly the use of a second detector head. Pierfitte disclose a tomographic acquisition method employing two detector heads (column 1 lines 62-67, column 2 lines 1-3 and 54-59). At the time the invention was made, it would have been obvious to use two detector heads for the method of Lonn resulting in a second moving steps for the second detector head and moving the second detector along the calculated orbital in order to obtain

imaging data. The motivation for doing so would have been that by using a second detector, image resolution could be improved while detection time could be decreased.

Regarding claim 13, Lonn discloses an tomographic scanning apparatus comprising: a detector element to detect inside a patient (column 6 lines 31-59); a sensor element to sense patient proximity to the detector element (column 7 lines 12-27); a first carrier mechanism to move the detector element to scanning and sensing positions (column 6 lines 31-59); and a control unit configured to calculate an orbital path based on the detector element's reference positions (column 6 lines 31-59). Lonn does not disclose expressly the use of a second detector head. Pierfitte disclose a tomographic acquisition apparatus employing two detector heads (column 1 lines 62-67, column 2 lines 1-3 and 54-59). At the time the invention was made, it would have been obvious to use two detector heads in the apparatus of Lonn resulting in a second detector head, a second sensor element, and a second carrier mechanism. The motivation for doing so would have been that by using a second detector, image resolution could be improved while detection time could be decreased.

Regarding claim 14, Lonn discloses that the orbit is non-circular (figure 2).

Regarding claim 15, Lonn discloses that the apparatus is a nuclear imaging apparatus (column 1 lines 5-10).

Regarding claim 16, Lonn discloses that the apparatus varies the radius of the orbital path to reduce the distance from the detector elements to the patient (column 5 lines 14-36).

Regarding claims 18-19, Pierfitte discloses that the detector heads may be positioned approximately ninety degrees from one another (figures 3a-3c).

Regarding claim 20, Lonn discloses that the detector is pitched downward, with respect to the patient, or closer to the patient (column 7).

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lonn (US 5,777,332 A), Pierfitte (US 6,204,503 B1), and further in view of Gagnon (US 6,147,353 A).

Regarding claim 17, Lonn and Pierfitte do not disclose expressly that the detectors are parallel-hole collimated detectors. Gagnon discloses a dual-headed tomography camera with parallel-hole collimation. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use parallel-hole collimation in the invention as described by Lonn in view of Pierfitte in order to improve image focus for better resolution.

12. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lonn (US 5,777,332 A), Pierfitte (US 6,204,503 B1), and further in view of Stephan (US 5,677,535 A).

Regarding claims 23 and 24, Lonn and Pierfitte do not disclose expressly a first sensor or second sensor emitting a light beam that is broken by proximity to a patient. Stephan discloses (figure 2, column 3 lines 15-49) a first sensor (7) emitting a light beam (13, 14, 15) that is broken by proximity to a patient (10). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a parallel light beam sensor to measure patient to detector distances in the invention as described by Lonn in view of Pierfitte. The motivation for doing so would have been the fact that this

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system would provide a contactless and automatic means for allowing the detector to be as close as possible to the patient during scanning that would improve sensing speed and precision.

Allowable Subject Matter

13. Claims 1, 3-10, and 25-30 are allowed.
14. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
15. Claims 21-22 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
16. The following is an examiner's statement of reasons for allowance:

Regarding claims 1 and 3-10, the prior art of record does not disclose or reasonably suggest, along with the other claimed limitations, a non-circular orbit detection method the steps comprising: namely, storing a first sensing position; storing a second sensing position; and then calculating a non-circular orbit about a patient using said stored first and second sensing positions. The balance of claims is found allowable due to their dependence upon an already allowed claim. For additional reasons of allowance, please refer to the previous office actions.

Regarding claims 25 and 26, the prior art of record does not disclose or reasonably suggest, along with the other claimed limitations, a non-circular orbit calculator comprising: namely, means for storing positions of first and second detector

elements when the sensors respectively detect first and second points of a patient; and means for calculating a non-circular orbit about the patient based on the stored positions of the first and second detector elements. The balance of claims is found allowable due to their dependence upon an already allowed claim and lacking any technical errors.

Regarding claims 27-30, the prior art of record does not disclose or reasonably suggest, along with the other claimed limitations, a method for nuclear medicine imaging with at least one detector following a non-circular orbit the steps comprising: automatically determining a plurality of orbital locations; and automatically predetermining a non-circular orbit. Prior art such as Lonn teaches the determining a plurality of orbital locations and predetermining a non-circular orbit, but Lonn does not disclose or reasonably suggest the automation of the process. Prior art such as Lonn actually teaches away from automation by disclosing the presence of a table operator that controls various aspects of the imaging process. The balance of claims is found allowable due to their dependence upon an already allowed claim and lacking any technical errors.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

17. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 12, the prior art of record does not disclose or reasonably suggest, along with the other claimed limitations, a method for orbital calculation the

steps comprising: namely, performing the steps of claim 11 automatically. Prior art such as Lonn disclose an operator that initiates the system and also performs longitudinal movement of the patient table.

Regarding claims 21-22, the prior art of record does not disclose or reasonably suggest, along with the other claimed limitations, a non-circular orbit apparatus comprising: namely, wherein the first sensing direction is vertically downward. Prior art such as Lonn, teaches away from a vertical first direction, preferring to make the first direction inwards from the plane of the table surface so as to allow the patient to leave the table easily, if necessary, before the tomographic scan begins. The balance of claims is found to contain allowable subject matter due to their dependence upon a claim that already contains allowable subject matter.

Response to Arguments

18. Applicant's arguments with respect to claims 11-24 have been considered but are moot in view of the new ground(s) of rejection.

19. Applicant's arguments, see the Appeal Brief pages 10-11, filed 10 October 2006, with respect to claims 27-30 have been fully considered and are persuasive. The rejection of claims 27-30 has been withdrawn.

Conclusion

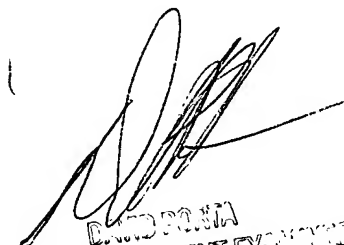
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Baker whose telephone number is (571) 272-6003. The examiner can normally be reached on MTWRF 9:30am-6:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSB


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